

ON NEW SPECIES OF CURCULIONIDAE ATTACKING FOREST TREES  
IN INDIA.

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Subfamily BRACHYDERINAE.

**Sympiezomias beelsoni**, sp. nov. (fig. 1).

♂♀.—Black; the head and rostrum with thin blue-grey scales; the prothorax with rather sparse dull blue scales on the dorsum, the sides entirely clothed with dense metallic green scales; the disk of the elytra as far as stria 4 covered mainly with blackish scaling, more or less interspersed with green scales, which are sometimes denser along the suture; beyond stria 4 the sides are clothed with dense pale green scaling almost to the margin, the inner edge of the green area being very irregular; the lower surface with dense greyish green scaling.

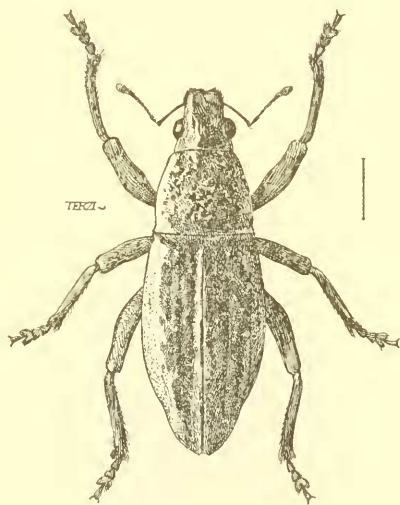


Fig. 1. *Sympiezomias beelsoni*, sp. n.

*Head* with coarse punctation that is usually confluent longitudinally, and often with a very faint broad transverse impression behind the eyes; the vertex rarely with a median stria, but usually with a central fovea. *Rostrum* a little longer than its basal width, shallowly impressed in the middle, with the usual short median furrow, which is not continued on to the forehead, the carinae on each side well marked and parallel. *Antennae* piceous; joint 1 of the funicle slightly longer than 2. *Prothorax* a little broader than long, narrower in front than behind, broadest about the middle, the sides gently rounded; with coarse confluent punctation above, the interspaces

finely and sparsely punctate, without any dorsal stria or impressions; the setae very short, flattened and recumbent. *Elytra* narrowly ovate in ♂, only slightly broader in ♀, with the basal margin strongly raised and the humeral fold not very prominent, the apices not mucronate in either sex; the striae strongly punctate, the intervals slightly convex and of even height, except that interval 1 is somewhat raised at the apex; the flattened setae short, recumbent and inconspicuous on the basal half, longer and more curved behind. *Legs* with the hind tibiae not denticulate internally.

*Length*, 7–8.75 mm.; *breadth*, 2.75–3.5 mm.

MADRAS: S. Malabar, Nilambur, 5 ♂♂, 14 ♀♀, vii.1918 (*C. F. C. Bceson*); S. Malabar, Nadengayam, 2 ♂♂, 1 ♀, xi.–xii.1917 (*N. C. Chatterjee*).

Owing to its green scaling and non-mucronate elytra this species comes nearest to *S. frater*, Mshl., which, however, has the whole upper surface with uniform green scaling; the latter also differs in having no median impression on the rostrum, the eyes are less convex, the pronotum is much more finely sculptured, and the intervals on the elytra are flatter.

These weevils were found feeding on the leaves of young teak, and in some cases defoliating the trees.

#### Subfamily ALCIDINAE.

#### *Alcides diptercarpi*, sp. nov. (fig. 2).

♂ ♀.—Colour red-brown, the head, rostrum, prothorax and the humeral angles of the elytra blackish; the elytra very sparsely set with small narrow pale scales, and without any squamose markings.

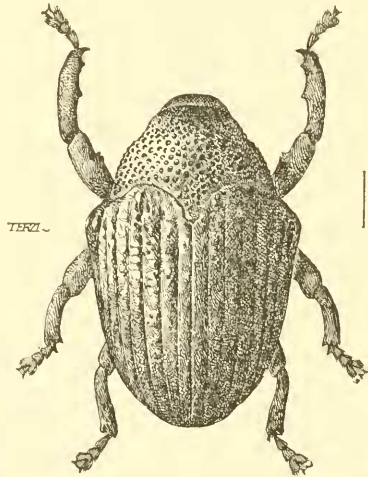


Fig. 2. *Alcides diptercarpi*, sp. n.

*Head* coarsely and confluent punctate, with a shallow furrow just above each eye, and the forehead broadly but shallowly impressed. *Rostrum* as long as (♂) or a little longer than (♀) the front femur, parallel-sided from the base to the middle, then narrowing slightly and widening again to the apex, which is a little broader than the base; coarsely and closely punctate throughout, the punctures on the apical

half scarcely smaller than those at the base, with a shallow elongate median fovea above the insertion of the antennae, and with a smooth median line on the apical half only; the sides clothed in the basal half with spatulate scales that are fringed at the apex; ♂ without any projection on the submentum. *Antennae* with joint 1 of the funicle about as long as the next three together, 4-6 subequal and as long as broad, 7 densely squamose and a little longer than its apical width. *Prothorax* nearly twice as broad as long, broadest at the base, the sides gently rounded and markedly constricted near the apex, the dorsum closely set with low convex granules, except the apical area, which is strongly punctate; each granule bearing a forwardly-directed seta (usually bifid) on its anterior edge, and the sides of the apical area with numerous fan-shaped plumose scales, a few of which occur also on the median basal lobe. *Scutellum* small, transverse, tilted forwards, and not at all enclosed in front by the elytra. *Elytra* broadly heart-shaped, scarcely longer than the width at the shoulders, which are obtusely prominent; the striae containing round, deep punctures, which are for the most part separated by more than their own width and become much shallower behind; the intervals broader than the striae, convex, transversely rugose, but not granulate, and sparsely set with small setiform scales, which are often bifid, trifid or quadrifid. *Legs* comparatively short and stout, and thinly clothed with narrow, cleft scales; the hind legs unusually short, so that when outstretched the femur reaches only the apex of ventrite 6 (4th visible), and the tibia exceeds the elytra only by its apical third; the tooth on the front femora of very unusual shape (fig. 3), being in the form of an irregularly trifid

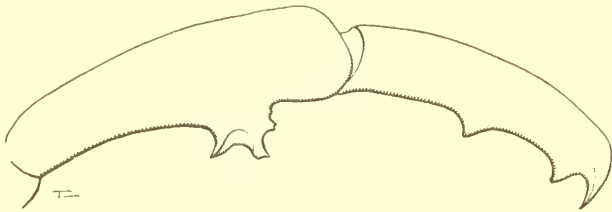


Fig. 3. Front femur and tibia of *Alcides dipteroearpi*, sp. n.

lamina, that on the mid-femora truncate at its apex and with two minute teeth on its external edge, that on the hind femora very small and simple; the front tibiae with a stout median tooth on the inner edge and a subapical one of almost equal size, the mid-tibiae with a subapical tooth but no median one, and the hind tibiae simple. *Venter* clothed with cleft scales, which only partly conceal the integument; ventrite 7 (last visible) with a large rounded median impression in the ♂.

*Length*, 6.5-7.2 mm.; *breadth*, 4.25-4.8 mm.

UNITED PROVINCES: Dehra Dun, bred from seeds of *Dipteroearpus*, vii.1911.

Described from four specimens.

The rhomboidal outline and general structure make this species look like a very small *A. crassus*, Pasc., from the Andamans; but the latter differs, *inter alia*, in having a median internal tooth on all the tibiae, the intervals on the elytra are quite smooth and sparsely punctate, the tooth on the fore femora is triangular with a denticulate outer edge, and the ♂ has two tufts of setae on ventrite 7.

There are several closely allied, and apparently undescribed, species in Malaya, from all of which *A. dipteroearpi* may be distinguished by the peculiar form of the tooth on the front femora (fig. 3).

*A. morio*, Heller, from South India, is also of very similar appearance, but the elytra are much less narrowed behind, the front coxae are closely approximate, and all the tibiae lack the median tooth and the subapical one is inconspicuous.

Subfamily CRYPTORRHYNCHINAE.

**Mecistocerus fumosus**, sp. nov. (fig. 4).

♂ ♀.—Colour black, with dense blackish or very dark sooty brown scaling above, sometimes sparsely variegated with lighter brown scales; the lower surface with dense sandy brown scaling, the venter with a very broad, median, dark brown stripe throughout.

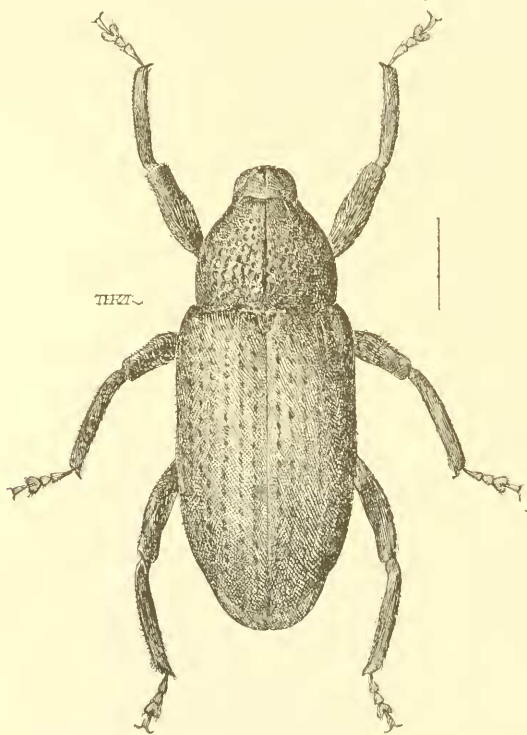


Fig. 4. *Mecistocerus fumosus*, sp. n.

*Head* with the vertex bare and with coarsely reticulate punctures; the anterior part densely clothed with curled scales, completely hiding the integument, which is much more finely sculptured than the vertex, bearing shallow larger punctures interspersed with much smaller ones; the frontal fovea very deep and elongate, the scales between it and the eye mostly erect. *Rostrum* of ♂ blackish in the basal half and red-brown towards the apex, coarsely punctate towards the base and there tricarinate dorsally, the apical part finely and sparsely punctate, the antennae inserted at the middle; of ♀, paler, a little longer and more slender, more finely punctate throughout, and with the antennae inserted behind the middle. *Antennae*

red-brown, the funicle sparsely clothed with recumbent pubescence, the joints clavate, the two basal ones equal, the remainder slightly and progressively diminishing in length, all of them being longer than broad, except 7, which is about as broad as long; the club subcompressed, markedly broader than the funicle, as long as the three preceding joints together, the first joint of the club as long as the remainder. *Prothorax* with the sides subparallel from the base to the middle, thence roundly narrowed to the apex and without any apical constriction; the dorsum flattened, with the usual very large and deep reticulate punctures, diminishing in size and depth anteriorly, the interspaces shiny, not setose, and with squamiferous punctures, without any real carina, but with a median undulating impunctate line that nearly reaches the base and apex; the scaling on the disk rather thin and recumbent, the scales on the sides larger, denser and slightly raised, and a sharply defined line on the pleura between the dark dorsal and pale ventral scaling. *Scutellum* trapezoidal, broadest behind, about as long as its apical width, markedly flattened and sparsely punctate. *Elytra* unusually flattened, the shoulders prominent; the posterior callus distinct but obtuse; the intervals plane, not elevated or granulate at the base, a little broader than the large deep punctures, which are partly hidden by the dense scaling; when abraded the transverse septa between the punctures are seen to be raised a little higher than the intervals between the rows; the scales very dense, suberect, and with the tips curved downwards, the scale-like setae so short in the male as to be hardly distinguishable from the scaling, a little longer and obliquely raised in the ♀. *Legs* with blackish scaling, except on the basal half of the femora, where it is light brown; the upper apical angle of the hind tibiae prominent, forming a sharp right angle. *Venter* densely squamose at the sides, more thinly so in the middle, with scattered raised squamiform setae; ventrites 3, 4 and 7 (nominally 1, 2 and 5) with numerous large deep punctures, the interspaces with fine scattered punctures, ventrites 5 and 6 each with a single transverse row of larger shallow punctures.

*Genitalia\** of ♂ (fig. 5) with the median lobe almost parallel-sided, with a very

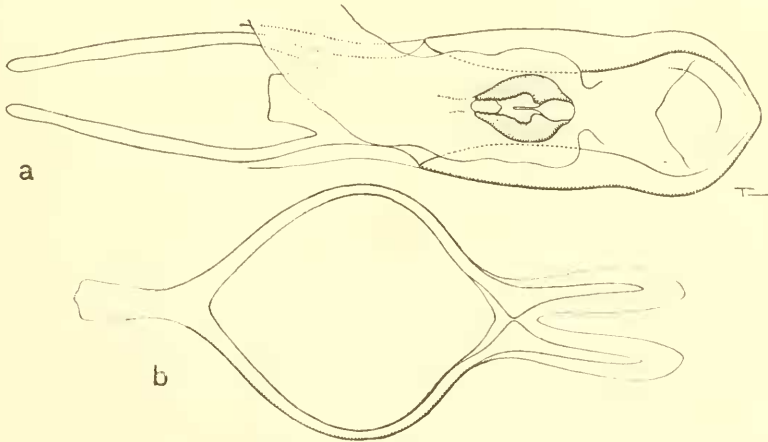


Fig. 5. Genitalia of *Mecistocerus fumosus*, sp. n., ♂ *a*, aedeagus; *b*, tegmen.

slight lateral sinuation near the apical third and the apex broadly rounded, only the entire margin being heavily chitinised (probably immature); the uneverted sac

\* The terms used are those suggested by Dr. D. Sharp, F.R.S. (Trans. Ent. Soc. Lond. 1918, pp. 209-222.



containing a pair of large lunate chitinous plates about the middle, the surface of the sac around them being closely studded with asperities, and no plates at the median orifice; the tegmen with the ring not closed in the normal manner, but the chitinous rim continued vaguely into the corresponding dorsal lobe on each side, the lobes united for a short distance at the base and a little shorter than the length of the ring, the strut being only half this length. *Genitalia* of ♀ with a rather irregular, oblong chitinous patch in the wall of the vagina opposite its junction with the oviduct, and a similar broad V-shaped plate adjoining it anteriorly; the spermatheca (fig. 7, *d*) very broadly comma-shaped, the apex obtusely rounded, and the accessory gland twice as long.

*Length*, 5.4–11 mm.; *breadth*, 2.2–4.8 mm.

UNITED PROVINCES: W. Almora div., Kumaon, on *Pinus longifolia* (*H. G. Champion*—type); Ranikhet, Kumaon, bred from *P. longifolia* (*H. G. C.*). PUNJAB: Dalhousie Range, Chamba State, bred from *P. longifolia* (*C. F. C. Beeson*).

Its remarkable dark sooty colouring and flattened upper surface distinguish this species from all its Indian congeners.

The species of this genus possess a stridulatory apparatus, which is the same in the two sexes, and consists of a file formed of transverse striae at the apex of each elytron on the lower surface; the scrapers that play on these files are situated on the seventh abdominal tergite and consist of two longitudinal rows of small, rather widely spaced granules.

#### Genus *Rhadinomerus*, Fst.\*

In his revision of the African species of *Mecistocerus* and *Rhadinomerus* (*Ent. Tidsk.* xxv, 1904, p. 186) Prof. K. Heller treats the latter genus as merely a sub-generic division of *Mecistocerus*. I agree with him that the supposed differences in the structure of the venter used by Faust are quite unreliable; but this does not apply to the form of the femora. In *Mecistocerus* these organs are clavate, being markedly narrowed towards the base, whereas in *Rhadinomerus* they are sublinear, being but little or not at all narrowed at the base; moreover, as Faust indicated later (*Ann. Mus. Civ. Genova*, xxiv, 1894, p. 279, note), the species of *Mecistocerus* can be distinguished by the presence of an elongate bare shiny patch at the base of the femora on the dorsal edge. But a more important point, which has hitherto been overlooked, is that *Rhadinomerus* entirely lacks the apical stridulatory apparatus that is present in both sexes of *Mecistocerus*; and, finally, in females of the latter genus the eighth abdominal tergite is as long as or longer than broad, whereas in *Rhadinomerus* it is distinctly transverse. On these grounds it seems desirable that Faust's genus should be retained unless these characters are shown to be unstable.

#### *Rhadinomerus bombacis*, sp. nov. (fig. 6).

♂♀.—Colour black; the prothorax with sparse, large, pale scales, which often form a narrow median line and an indefinite lateral one on each side; the elytra with very dense brown scaling, variegated with a few pale spots and transverse blackish

\* Faust, *Stett. Ent. Zeit.* 1892, p. 215.

patches ; the lower surface with a few sparse pale scales, especially towards the sides, and obliquely raised flattened setae down the middle.

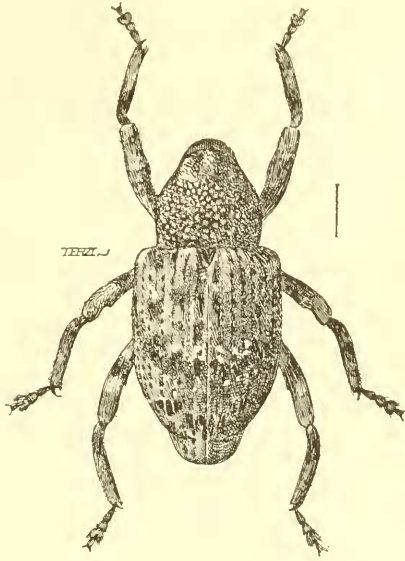


Fig. 6. *Rhadinomerus bombacis*, sp. n.

*Head* coarsely reticulate on the vertex, the forehead with dense recumbent scales, which are larger behind than in front and partly conceal the median furrow, which is rather shorter and shallower than usual. *Rostrum* with the usual four coarsely punctate furrows and three narrow carinae at the base ; the antennae inserted a little in front of the middle in ♂ and a little behind it in ♀. *Antennae* with the funicle clothed with dense, erect pubescence ; the comparative lengths of the funicular joints, beginning with the longest, are as follows : (1, 2) (3, 4) (5, 6) 7, all being longer than broad except 7, which is as broad as long or slightly transverse ; the club only slightly broader than the funicle, its first joint not longer than the second. *Prothorax* a little broader than long, with the sides very gently rounded, broadest about the middle, very slightly narrowed behind and much more so in front, with a shallow constriction near the apex ; the dorsum, except the apical area, set with very large, deep, reticulate punctures, and sometimes with a trace of a much abbreviated median ridge ; the punctures on the pleurae smaller and much shallower and with the intervals duller and more punctate ; the pale scales much larger than those on the elytra, oblong, convex and veined ; at the base of each puncture a suberect dark spatulate seta directed forwards. *Scutellum* small, rounded, very convex and prominent. *Elytra* subcordate, much broader than the prothorax at the shoulders, which are roundly rectangular, with the sides subparallel from the shoulders to the middle and rather abruptly narrowed behind, being markedly constricted at some distance before the apex ; the large deep subquadrate punctures becoming much shallower behind ; the slightly convex intervals as broad as the punctures and a little higher than the septa between them, with indistinct granules, which are more evident near the base, where the intervals are rather higher, each granule bearing a slightly raised short scale-like seta. *Legs* with dense, light brown scaling ; all the femora with a faint, pale dorsal patch beyond the middle, behind which on the posterior pairs is a large dark patch ; the tibiae with the basal half darker, except for a pale dorsal

spot at the extreme base. *Abdomen* with coarse deep punctures on ventrites 3, 4 and 7 (nominally 1, 2 and 5), the punctures on the two former being denser on the disk than at the sides; ventrites 5 and 6 impunctate and with the anterior edge crenulated.

*Genitalia* of ♂: the median lobe (fig. 10, c) oblong, troughlike and very slightly narrowed towards the base, only lightly chitinised, except the inflexed lateral margins and a transverse strip close to the apex, the latter area being dispersely punctate, the apex broadly rounded, the base forming a sharp right angle on each side, and the median orifice membranous and inconspicuous; the median struts slender, two-thirds longer than the lobe, with a strong double sinuation in the basal third, and connected together for a short distance at the base by an indefinite extension of the lightly chitinised floor of the lobe; the uneverted sac extending between the struts to the end of the sinuated part, containing a small, median, lanceolate, chitinous patch in the lobe close to its base, and the transfer-apparatus at the extremity of the sac composed of two short juxtaposed hairpin-shaped pieces; the tegmen (fig. 11, c) with the strut a little shorter than the ring, and this again shorter than the lobes, which are fused together for a very short distance at the base; the spiculum twice as thick as the median struts and slightly dilated at the apex, the basal fork forming a very wide angle, one branch being twice as long as the other and abruptly curved at its apical third. *Genitalia* of ♀: spermatheca as shown (fig. 7, a).

*Length*, 3.8–6.5 mm.; *breadth*, 1.8–3.5 mm.

UNITED PROVINCES: Pathri, Sarahanpur, bred from logs of *Bombax malabarica*, xii.1917–iv.1918 (C. F. C. Beeson).

BIHAR & ORISSA: Singhbhum, from *Bombax malabarica*, i.1921 (Beeson).

Described from 24 specimens.

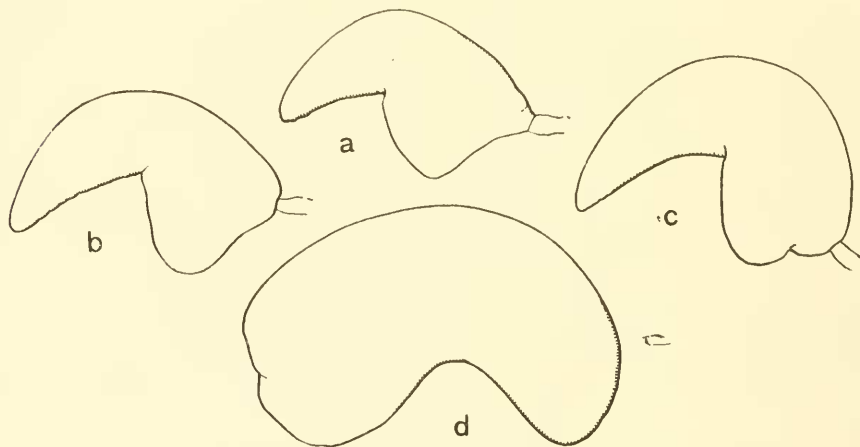


Fig. 7. Spermatheca of (a) *Rhadinomerus bombacis*, sp. n.; (b) *R. subsfasciatus*, sp. n.; (c) *R. malloti*, sp. n.; (d) *Mecistocerus fumosus*, sp. n.

***Rhadinomerus diversipes*, sp. nov.** (fig. 8).

♂ ♀.—Head and prothorax blackish brown; elytra, venter and legs red-brown; the prothorax with the apical area densely clothed with pale brown scales and



a few similar scales scattered over the disk, and with short, erect, dark setae; the elytra rather thinly clothed with uniform pale brown scales (sometimes variegated with paler spots), and with obliquely raised pale squamiform setae; the sternum with sparse, pale, fine erect setae, the venter with a very few pale scales and with flattened, erect, pale setae.

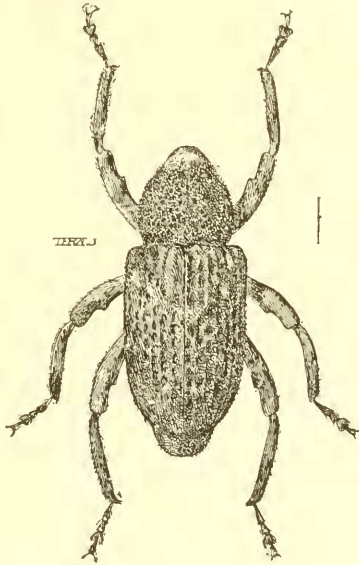


Fig. 8. *Rhadinomerus diversipes*, sp. n.

*Head* bare and coarsely but shallowly reticulate on the vertex; the forehead on a slightly lower plane, with much shallower and smaller punctures, and with dense pale scales; the frontal furrow very broad and deep. *Rostrum* tricarinate at the base, as usual, with a small patch of raised pale scales in the middle of the base and some erect, pale, squamiform setae; the antennal insertion at (♀) or beyond (♂) the middle. *Antennae* testaceous, with the apical half of the funicle clothed with sparse, recumbent pubescence; the funicular joints in order of diminishing length: (1, 2), 3, 4, 5, (6, 7); 5 as long as broad, 6 and 7 slightly transverse, the rest longer than broad; the club with the basal joint a little shorter than the rest together. *Prothorax* a little broader than long (11:9), with the sides rounded, broadest at the middle, slightly narrowed to the base and shallowly constricted at the apex; the reticulate punctures not very large, but deep; the interspaces dull, finely coriaceous, and sloping inwards towards the puncture, each bearing a single erect, compressed, dark seta; the median carina reduced to a very short sinuous line in the middle, and sometimes almost obliterated. *Scutellum* almost circular, strongly convex, shiny, and with a few short recumbent hairs. *Elytra* subcylindrical, shallowly constricted close to the apex and with an obtuse posterior callus; the oblong punctures deep and diminishing behind, each covered by an oblong horizontal scale attached to the front margin, and on each side a small blackish prominence within the puncture; the intervals about as broad as the punctures, somewhat raised and rugulose close to the base, but almost smooth elsewhere; the scales varying from oval to oblong, not sufficiently dense as to conceal the entire integument, and shorter than those on the apical area of the prothorax; the setae compressed, obliquely raised, and in widely spaced rows. *Legs* with not very dense, uniformly pale brown scales; the

apex of the hind tibiae of the ♂ alone produced inwardly almost at right angles to the tibia in the form of a lamina (fig. 9), having at its apex two short teeth representing

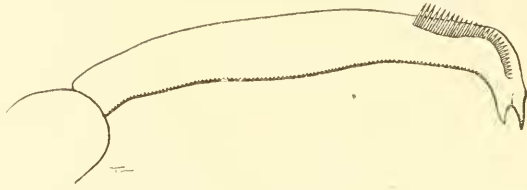


Fig. 9. Hind tibia of *Rhadinomerus diversipes*, sp. n. ♂.

the uncus and mucro, the former being the longer. *Abdomen* with very large separated punctures on ventrite 3 (1st visible), the punctures being at most two deep on the shortest portions (behind the coxae); ventrites 4-6 with only a few much smaller punctures close to the lateral margins; ventrite 7 coarsely and closely punctate; 5-7 with the anterior edge very broadly emarginate and bearing a close fringe of short hairs, the emargination forming a well-marked obtuse angle at each end.

*Genitalia* of ♂: the median lobe (fig. 10, *a*) oblong, parallel-sided, and moderately

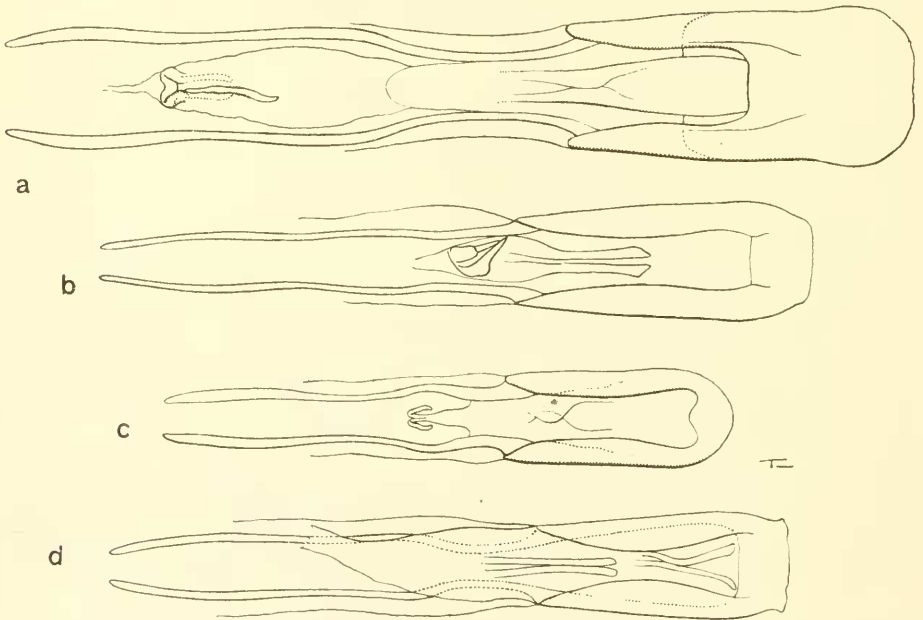


Fig. 10. Male genitalia (median lobe) of (*a*) *Rhadinomerus diversipes*, sp. n.; (*b*) *R. malloti*, sp. n.; (*c*) *R. bombacis*, sp. n.; (*d*) *R. subfasciatus*, sp. n.

chitinised throughout, except for an apical hyaline area which is broadly truncate, the base sharply angulate on each side, the median orifice at about the middle of the lobe, and the apical half with a few sparse punctures; the median struts slender, gently sinuous throughout, and half as long again as the lobe, with which they do not definitely unite but merge gradually into the lateral edges of an abruptly narrowed,

indefinite, basal chitinous extension of the floor of the lobe; the uneverted sac extending between the struts for three-fourths of their length, its terminal third covered with asperities, the transfer-apparatus conspicuous and in the form of two juxtaposed crook walking-sticks with the crooks turned outwards; the tegmen (fig. 11, *a*) with the proportionate lengths of the strut, ring and dorsal lobes as 4:2.5:5, the lobes being fused together for one-third of their length from the base; the spiculum as broad as the tegminal strut, widely dilated at the apex, and the basal fork forming a right angle with the branches nearly equal in length.

*Length*, 3.5-2 mm.; *breadth*, 1.4-2.4 mm.

UNITED PROVINCES: Lachiwala, Dehra Dun, bred from *Eugenia jaman*, x.1914 (*C. F. C. Beeson*—type), and from *Shorca robusta*, xi.1915 (*Beeson*); Surajbagh, Dehra Dun, bred from *Eugenia jaman*, xi.1915 (*Beeson*); Jubberkhet, Dehra Dun, bred from *Shorca*, xii.1915-i.1916 (*Beeson*).

Described from 8 specimens.

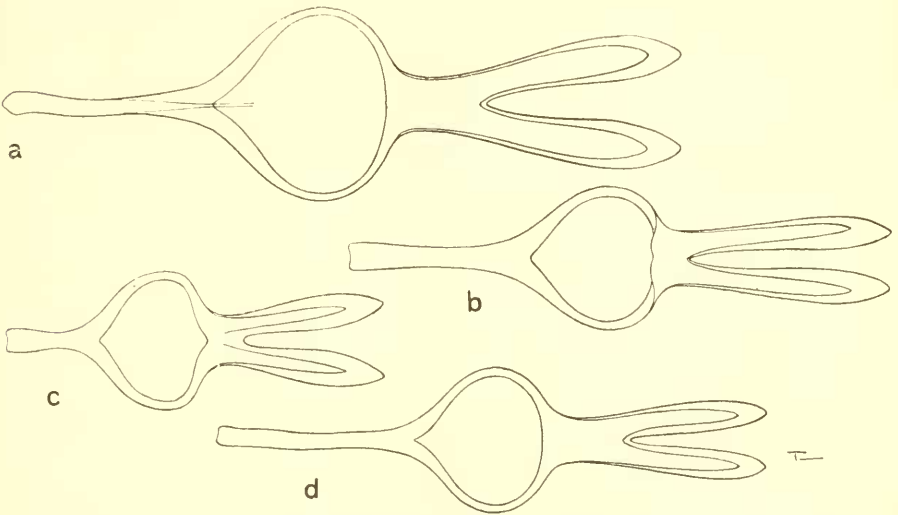


Fig. 11. Male genitalia (tegmen) of (*a*) *Rhadinomerus diversipes*, sp. n.; (*b*) *R. malloti*, sp. n.; (*c*) *R. bombacis*, sp. n.; (*d*) *R. subfasciatus*, sp. n.

### ***Rhadinomerus malloti*, sp. nov.**

♂ ♀.—Head and prothorax blackish, the latter with yellowish brown scales on the apical area only; the elytra piceous, irregularly mottled with lighter and darker brown scaling; the lower surface without true scales, but sparsely set with short and comparatively fine setae.

Extremely similar to *R. diversipes*, but distinctly broader in proportion to its length. In that species the intervals between most of the punctures on the prothorax are flattened and tilted inwards towards the puncture, so that the ridge is on the outer or posterior edge; in *R. malloti* these intervals are normally convex with the ridge approximately in the middle. The scales in *R. diversipes* are oblong, with the apex truncate or broadly rounded; in *R. malloti* they are narrowly ovate or lanceolate, with the apex pointed, and the setae are distinctly narrower. In the present species ventrite 3 (1st visible) is more closely punctate, the punctures being three deep behind the coxa; ventrite 4 is also coarsely punctate, but less densely so than

3; 5 and 6 sometimes bear a single transverse row of punctures; 5-7 have the anterior margin only shallowly sinuate and without a fringe of hairs, the sinuation not being angulated laterally. The hind femora bear a dark patch in the middle, the tibiae are all darker on the basal half, and the hind pair in the ♂ have the uncus normal.

*Genitalia* of ♂: the median lobe (fig. 10, *b*) with the sides straight and very gradually diverging from the base to beyond the middle, then gently rounded to the apex, which is broadly truncate and a little wider than the base, the lateral angles of which are obtuse, the greatest width at one-fourth from the apex; the heavy chitinisation is confined to the lateral margins and a slightly narrower transverse band close to the apex, the rest being almost hyaline; the median struts slender, half as long again as the median lobe, gently sinuous throughout, distinctly uniting with the sides of the lobe, and the connecting membrane between them at the base hardly chitinised; the unevverted sac extending inwards for only one-fourth the length of the struts and without apparent asperities, the transfer-apparatus rather large and with two awl-shaped processes; the tegmen (fig. 11, *b*) with the proportionate lengths of the strut, ring and dorsal lobes approximately as 3:2:4, the lobes being united only at their extreme base; the spiculum as wide as the tegminal strut and only slightly widened at the apex, with one arm of the basal fork about half as long as the other and forming an obtuse angle with it. *Genitalia* of ♀: the spermatheca as shown (fig. 7, *c*).

*Length*, 4.4-6 mm.; *breadth*, 2-2.75 mm.

UNITED PROVINCES: Lachiwala, Dehra Dun, bred from *Mallotus philippinensis*, x.1914 (*C. F. C. Beeson*).

Described from 12 specimens.

### ***Rhadinomerus subfasciatus*, sp. nov.**

♂ ♀.—Colour piceous black, with the apex of the rostrum and tarsi paler; the extreme base of the rostrum densely, the forehead less closely, clothed with cinnamon scales; the apical area of the prothorax with similar elongate scales, the remainder not squamose, but with erect, compressed dark setae; the elytra variegated with more or less confluent spots of cinnamon-coloured scaling, which usually form a broad, broken transverse band behind the middle, the dark areas thinly clothed with much smaller dark scales; the lower surface without true scaling, but with sparse erect pale setae.

The other external characters as described for *R. diversipes*, except the following: *Scutellum* of similar shape, but quite devoid of hairs. *Elytra* with the setae a little longer and distinctly narrower; the punctures not covered by a scale, this being replaced by a very minute seta. *Legs* with the scales distinctly darker and smaller on the basal than on the apical half of the tibiae; the hind femora with a dark median patch; the uncus of the hind tibiae of the male normal. *Abdomen* with ventrite 3 (1st visible) much more closely punctate, the punctures being three deep behind the coxae; ventrite 4 also bearing strong punctures, but much smaller and more widely spaced than those on 3, and less numerous in the ♀ than in the ♂.

*Genitalia* of ♂: the median lobe (fig. 10, *d*) shaped just like that of *R. malloti*, but the chitinised lateral areas more produced inwards in the middle, so that the hyaline median area is shaped like an hour-glass; the median struts slender, three-fourths longer than the lobe, strongly bisinuous in the basal third, distinctly uniting with the sides of the lobe, and connected together by a lightly chitinised membrane in the basal fifth; the unevverted sac extending inwards for nearly half the length of the struts, set with asperities in the terminal area, but without any obvious transfer-apparatus or other chitinous structure; the tegmen (fig. 11, *d*), with the

proportionate lengths of the strut, ring and dorsal lobes as 3·5 : 2 : 3, the lobes fused together for nearly half their length; the spiculum similar to that of *R. malloti*, but the fork forming almost a right angle. *Genitalia* of ♀: the spermatheca as shown (fig. 7, b).

*Length*, 3·5–4 mm.; *breadth*, 1·5–2 mm.

UNITED PROVINCES: Jhabberkhet, Dehra Dun, bred from log of *Shorea robusta*, vi.1916 (C. F. C. Beeson—type); Kotdwara, Lansdowne Division, bred from *Shorea*, ix.1917. PUNJAB: Thano, Siwalik Hills, bred from *Eugenia*, vi.1918 (Beeson).

The three previously described Indian species of *Rhadinomcrus* (Faust, Ann. Mus. Civ. Genova, xxxiv 1894 (1895), pp. 279–281) are known to me from description only. *R. granicollis* is distinguished from all the species here described by its granulato-punctate prothorax and the elytra bear spatulate suberect setae. *R. conciliatus* is characterised by its cylindrical elytra, the intervals of which bear minute granules and erect hairlike setae, the prothorax being oblong and parallel-sided. The most distinctive features of *R. contemptus* appear to be that the prothorax is roundly dilated before the middle and that it is densely squamose both at the sides and at the apex.

***Rhadinopus buteae*, sp. nov.** (fig. 12).

♂ ♀.—Colour black or red-brown, with dense, pale brown scaling and very broad erect scale-like setae; the pronotum with an indefinite blackish patch on each side of the middle line near the base and a few white setae in the middle of the disk; the elytra each with an ill-defined oblique whitish band running from about the middle of the suture towards the shoulder, but terminating on interval 5, and just behind this on interval 2 an elongate patch of dense erect blackish setae; the lower surface rather thinly clothed with obliquely raised broad pale scales.

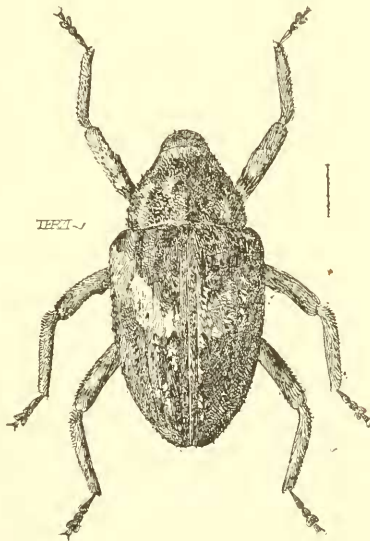


Fig. 12. *Rhadinopus buteae*, sp. n.

*Head* closely punctate on the vertex, each puncture containing a minute seta; the forehead not impressed, more coarsely punctate and with dense scales, which are recumbent behind and erect in front, the interocular space parallel-sided. *Rostrum*



rather strongly curved, strongly punctate at the base, and there rather more squamose and with the median carina a little more prominent in the ♂; the antennal insertion at (♀) or a little beyond the middle (♂). *Antennae* with joint 2 of the funicle a little longer than 1, the remainder progressively diminishing and all longer than broad except 7, which is as long as broad and bead-like; the club very elongate, as long as the 5½ preceding joints, cigar-shaped. *Prothorax* broadest at the base, the sides gently rounded, not constricted at the apex; the dorsum strongly and closely punctate, without any median carina, the spaces between the punctures flat, shiny and impunctate; the scales large and subcircular, but scarcely overlapping, those in the middle of the disk smaller and exposing more of the integument; the very broad, erect spatulate setae truncate at the apex. *Scutellum* almost circular, slightly convex and densely clothed with small scales. *Elytra* ovate, broadest at the shoulders, which form a rounded, obtuse angle, and scarcely impressed before the apex; the comparatively small punctures almost hidden by the dense scaling, each one being covered by a large scale and set in shallow striae; the intervals a little broader than the striae, not carinate on the disk, but rather convex and somewhat rugulose or subgranulate, especially towards the base, only interval 9 carinate in the posterior half; the scales closely overlapping, and each interval with a row of very stout, erect, scale-like setae, these being more numerous on intervals 2, 3 and 5. *Legs* with uniform pale brown scaling and recumbent setae, the latter being erect only along the dorsal edge of the tibiae; the dorsal edge of the femora straight and the inferior tooth small; the tibiae markedly narrowed from base to apex, and with no angulation externally at the apex.

*Length*, 6 mm.; *breadth*, 3 mm.

PUNJAB: Rani Range, Siwalik Hills, bred from logs of *Butea frondosa*, iv.1918 (C. F. C. Beeson).

Described from 8 specimens.

In the ♂ the last visible ventrite has a shallow impression at the apex, with a small tubercle on each side of it bearing a single seta; in the ♀ this ventrite bears a shallow transverse impression at a little distance from the apex.

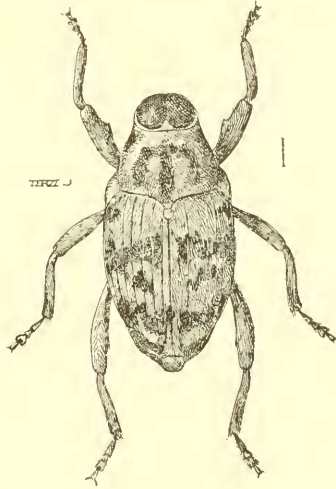
From the three previously described Indian species of the genus, *centriniformis*, *consputus* and *parvus* (Faust, Ann. Mus. Civ. Genova, xxxiv, 1894 (1895), pp. 289-90) the present species may be distinguished by the common pale V-shaped mark on the elytra and by its tapering tibiae. *R. centriniformis* and *consputus* also differ, *inter alia*, in having all the setae recumbent, interval 3 on the elytra strongly carinate on the declivity, the dorsal edge of the posterior pairs of femora markedly sinuate, the seventh ventrite (last visible) of the ♂ without tubercles, tergite 7 of the ♂ almost truncate at the apex and 8 densely squamose (in *buteae* 7 of the ♂ is deeply sinuate at the apex and 8 is bare and shiny). *R. parvus* differs in having the pronotum granulate-punctate, the scutellum is punctiform and shiny, the punctures on the elytra bear only a fine seta instead of a broad scale, and the intervals are narrowly carinate.

In this genus the stridulatory apparatus of the ♂ consists of the usual files towards the apex of the elytra near the suture, the scraper being formed by two very minute, short transverse carinae on the apical edge of the seventh tergite, which are very easily overlooked. In the ♀ the files are on the seventh tergite, instead of on the elytra, and are composed of comparatively widely separated longitudinal striae, the ridges between them being very finely and transversely striate. The apparatus in both sexes is similar to that found in the European *Cryptorrhynchus lapathi*; the statement made by Dr. C. J. Gahan (Trans. Ent. Soc. Lond. 1900, p. 450) and repeated by myself (Fn. Brit. India, Curculionidae, i, p. 17), that there are no stridulatory organs in the ♀ of this species is erroneous.

## Subfamily ZYGOPINAE.

***Osphilia odinae***, sp. nov. (fig. 13).

♂ ♀.—Colour piceous brown, rather thinly clothed above with pale hair-like scales, asymmetrically variegated with subdenuded patches; the lower surface densely covered with white scales, mostly linear, but some ovate; the base of the rostrum and a broad stripe below each eye with dense, narrow, whitish scales. The pronotum with pale yellowish scales, all of which are linear except a single row along the extreme base, which are rather shorter and broader; a broad median denuded stripe, and on each side of it a shorter oblong one narrowly uniting with it not far from the apex, thus forming (very roughly) an inverted trident, externally to which is a very indefinite lateral longitudinal sub-denuded patch; these darker areas thinly clothed with dark recumbent setae. The elytra with the following similar ill-defined and rather variable darker patches: a rounded one on the shoulder, a transverse band before the middle extending from stria 2 nearly to the lateral margin, a broad and very irregular macular transverse band behind the middle, and a rounded juxta-apical spot.

Fig. 13. *Osphilia odinae*, sp. n.

*Rostrum* as long as the head and prothorax together, entirely red-brown, gradually narrowed from the base to near the apex and thence slightly dilated, the extreme base triangular in section with the apex uppermost; the basal portion coarsely punctate (less so in ♀), but the median line smooth throughout, the punctures on the apical portion very fine and separated in ♀, and longitudinally confluent in ♂; the antennal insertion behind the middle in ♀, at or beyond it in ♂. *Antennae* of ♀ testaceous with only the club blackish, in the ♂ the whole funicle also blackish except joint 1 and the basal half of 2; the funicle with joint 2 as long as or a little longer than 1, the remainder slightly and progressively shortening outwards in the ♀, all longer than broad, except 7, which is as broad as long; in the ♂ joint 2 is strongly clavate, the dilatation being greater on the inner side, which is densely clothed with setae, the remaining joints bead-like and more nearly equal in length than in the ♀; the first joint of the club longer than broad in both sexes. *Prothorax* transverse, the sides gently rounded, broadest before the middle, the base deeply bisinuate;

the dorsal outline almost flat, the dorsum finely but confluent granulato-punctate throughout. *Scutellum* circular, densely clothed with woolly scales having their apices directed forwards. *Elytra* with the intervals broader than the very shallowly punctate striae and finely rugulose; the pale scales very long and narrow, except on the basal half of interval 1, where they are much shorter and broader and pubescent or densely fringed; the scales on the darker areas short, setiform and dark. *Legs* finely rugulose, rather thin and uniformly clothed with long, narrow, pale scales; the front femora with a long sharp tooth, followed by a low carina bearing a single row of 9 or 10 stiff erect bristles.

*Length*, 3.25-3.5 mm.; *breadth*, 1.6-1.8 mm.

UNITED PROVINCES: Banki, Gorakhpur, bred from *Odina wodier*, v.1918 (*C. F. C. Beeson*—type); Chauk, Gorakhpur, bred from *Cassia fistula*, v.1918 (*Beeson*); Dehra Dun, bred from *Odina wodier*, v.1919 (*B. B. Osmaston*).

Described from 17 specimens.

Only two other species of the genus have been described from the Indian sub-region. *O. breviostris*, Heller, from Ceylon, is of the same size, but has the rostrum only as long as the prothorax, the joints of the funicle gradually widening outwards, the antennal club pale and with the first joint broader than long, and the elytra clothed with yellow scales and with a white spot at the apex of the suture.

*O. egregia*, Fst., from Burma, is a much larger insect (6 mm.) with mottled amber and ochraceous scaling on the elytra, and three transverse rows of pale spots on the pronotum.